



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/849,522

05/20/2004

Joo-ho Kim

1793.1266

5579

49455 7590 04/30/2007  
STEIN, MCEWEN & BUI, LLP  
1400 EYE STREET, NW  
SUITE 300  
WASHINGTON, DC 20005

EXAMINER

LAM, CATHY FONG FONG

ART UNIT

PAPER NUMBER

1775

MAIL DATE

DELIVERY MODE

04/30/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/849,522

Applicant(s)

KIM ET AL.

Examiner

Cathy Lam

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,11-16,28-31,37,43-45,49-51 and 65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,11-16,28-31,37,43-45,49-51 and 65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 05-20-2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

In view of the amendment and remarks filed on January 18, 2007, the 112 rejections have been withdrawn. However, the pending claims continue to be unpatentable as following:

***Claim Rejections - 35 USC § 112***

1. Claims 15 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 15 and 30, applicant is required to clearly define what the subscribe x is referring to, i.e. PtOx, AgOx, PdOx and WOx.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 11, 12, 65, 37 and 43-44 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. patent 5,252,370 to Tominaga et al.

Regarding claims 1, 2, 11, 12, 65, 37 and 43-44, Tominaga discloses a polycarbonate substrate with a silver oxide layer (noble metal oxide) formed directly on the substrate. Tominaga discloses a dielectric layer formed on the metal oxide layer and recesses (a pit pattern) formed in the silver oxide layer, which releases O<sub>2</sub> when heated by a laser, thereby changing volume (column 2 lines 63-65, column 4 line 10, column 6 lines 39-51). Claims 1 and 37 are product by process claims wherein the

Art Unit: 1775

patentability of the product does not depend on its method of production. "If the product in the product by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process unless it can be shown that the product produced by the process is in some manner measurably distinct from the product produced by another process." See *MPEP 2113*. As such, the process limitations within claims 1 and 37 do not provide patentable distinction over the prior art.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 13, 16, 28-31, 45 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,252,370 to Tominaga et al. as applied to claims 1 and 37 above in view of U.S. Patent 4,504,548 to Esho et al.

Regarding claims 13, 16, 28-31, 45 and 49-51, Tominaga discloses all of the limitations of claims 1 and 37 above and discloses a silver oxide layer 800 angstroms (or 80nm) thick (column 7 lines 47-48). Tominaga discloses a dielectric layer formed on the metal oxide layer and further discloses recesses (a pit pattern) formed in the silver oxide recording layer, which releases O<sub>2</sub> when heated by a laser, thereby changing volume (column 6 lines 39-51). Tominaga discloses a dielectric layer on the silver oxide recording layer for helping to heat the silver oxide layer but does not disclose a dielectric layer between the silver oxide and the substrate (column 6 lines 59-62).

Esho discloses a dielectric layer below a recording layer for the purpose of reflecting laser wavelengths, which would help to heat the recording layer. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the dielectric layer of Esho as a functional equivalent of the claimed dielectric layer between the substrate and recording layer of Tominaga.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,252,370 to Tominaga et al. and U.S. Patent 4,504,548 to Esho et al. as applied to claims 1 and 13 above in view of U.S. Patent 5,648,134 to Shiratori et al.

Regarding claim 14, Tominaga and Esho disclose all of the limitations of claims 1 and 13 above but do not disclose ZnS-SiO<sub>2</sub> as the dielectric materials. However Tominaga discloses that the dielectric film may be formed of various dielectric materials and that a dielectric containing SiO<sub>2</sub> would improve recording sensitivity (column 5 lines 13-18). Esho discloses no specific dielectric.

Art Unit: 1775

However Shiratori discloses ZnS-SiO<sub>2</sub> as a dielectric used for both top and bottom dielectric materials for an optical recording medium stack. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the ZnS-SiO<sub>2</sub> dielectric layers of Shiratori as both dielectric layers surrounding the recording layer of Tominaga and Esho to keep the same materials and to provide SiO<sub>2</sub> in the dielectric for improved recording sensitivity.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,252,370 to Tominaga et al. and U.S. Patent 4,504,548 to Esho et al. as applied to claims 1 and 13 above in view of U.S. Patent 6,693,873 B2 to Kondo et al.

Regarding claim 15, Tominaga and Esho disclose all of the limitations of claims 1 and 13 above but do disclose tungsten oxide as the recording layer film. However, Tominaga discloses silver oxide as a recording layer film that changes upon irradiation.

Kondo discloses tungsten oxide as a functional equivalent to silver oxide as a recording layer that is changed (decomposed) when irradiated with an energy ray. Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use tungsten oxide as taught by Kondo as the recording layer of Tominaga and Esho.

***Response to Arguments***

2. Applicant's arguments filed on January 18, 2007 have been fully considered but they are not persuasive. Applicant disagrees the art rejection and raises the following issues:

A. Applicant's product has a different structure than the prior art structures.

Applicant argues that the structure implied by the process steps should be considered when assessing the patentability of product by process claims over the prior art, where the product can only be defined by the process steps by which product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.

B. Tominaga teaches a recording thin film 3 contains iron nitride.

C. Tominaga does not teach the pit pattern having a diameter smaller than a diameter of the laser beam spot.

D. Esho does not teach changing a volume of a portion of the transformation layer irradiated by a laser beam spot...

E. Shiratori does not teach anything about the pit pattern having a diameter smaller than a diameter of the laser beam spot.

F. Kondo does not teach a pit pattern having a diameter smaller than a diameter of the laser beam spot.

In respond to the above issues:

Art Unit: 1775

A. Applicant's process has not made the product any different from the prior art of record, only relative terms are in the claims, that is the pit diameter is *smaller than* the laser beam spot diameter. One skill in the art could easily manufacture a desirable recording medium with a desirable pit diameter by a workable laser beam by adjusting the wavelength, the duration and intensity, etc. to obtain a desired surface condition.

Tominaga teaches the same material and same structure of the present invention, specifically a laser is irradiated upon the optical recording medium, and heats the recording thin film 3, resulting a recess 21 in the substrate 2 and a space 31 (analogous to the pit) in the recording thin film 3 (col 6 L 40-51). The anticipation rejection was prudent.

B. Tominaga's recording thin film 3 is an inorganic material selected from silver oxide and iron nitride. This implies that the inorganic material is either silver oxide **or** iron nitride (col 4 L 38-39). In the following paragraphs, Tominaga discloses the oxygen gas flow rate in *each* individual case (col 4 L 33-37, L 53-68).

C. Applicant's limitation in claims 1 and 37, that is the pit pattern having diameter smaller than a diameter of the laser beam spot, is **outside of the product** itself. Although the prior art does not specifically teach the diameter of the recess 21, the space 31 nor the laser beam spot, but the resulting product is the same as the claimed product, therefore one can not argue that the prior art is different from the present invention even though the laser beam might be of a larger diameter. On the other hand, applicant has no prove on the laser beam used in the prior art is NOT larger in diameter than the pit diameter.



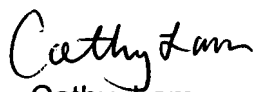
Art Unit: 1775

D-F. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the obviousness rejections were prudent.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Cathy Lam  
Primary Examiner  
Art Unit 1775

cfl  
April 12, 2007